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To: . Mr. J. E. Wickham
From: . Barbara S. Mait✓
Subject: . Smokeless Tobacco

Date: September 13, 1983

An investigation of the smokeless tobacco industry was initiated. This memo gives the background, manufacturers, sales, and analytical data for smokeless tobacco.

BACKGROUND

Since 1918, both the production and consumption of chewing tobacco declined steadily. However, with the introduction of the foil pouch and a switch to sweeter products in the 1960's, an increase in the consumption of smokeless tobacco began.

There are four types of smokeless tobacco:

1. Plug
2. Twist
3. Finecut (snuff)
4. Looseleaf

Plug is made from leaf that is pressed into flat cakes after being stemmed. Twist is made from leaf tobacco that is stemmed, twisted into small rolls, and then folded. Finecut (snuff) is made from finely shredded leaf, principally burley and Green River types. Looseleaf is made from cigar leaf tobacco that is not otherwise suitable for cigar manufacturing.¹

The principal flavorants used in smokeless tobacco include wintergreen and licorice. Other important flavorants of smokeless tobacco, primarily snuff, include attar of roses, lavender, cloves, jasmine, and sandlewood.²

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MANUFACTURERS

The major producers of smokeless tobaccos and there locations are given below:

<u>Manufacturer</u>	<u>Location</u>
Brown & Williamson	Louisville, KT
Conwood	Memphis, TN
General Cigar	New York, NY
Lorillard	New York, NY
Pinkerton	Owensboro, KT
R. C. Owen	Gallatin, TN
R. J. Reynolds	Winston-Salem, NC
U.S. Tobacco	Greenwich, CN

SALES

Chewing tobacco consumption has increased 50% over the past ten years. Looseleaf tobacco has the greatest part of the market. Although chewing tobacco is becoming popular in other countries (specifically European), the United States is by far the major market for smokeless tobacco.³

Total poundage of the various types of smokeless tobacco produced is given below:

<u>Type</u>	<u>Thousands of Pounds</u>
Plug	15,322
Twist	1,767
Finecut	32,700,000
Looseleaf	70,886

A breakdown by type and market share of smokeless tobacco is given below:

<u>Type</u>	<u>Manufacturer</u>	<u>Market Share (%)</u>
Plug	R. J. Reynolds	67.9
	Conwood	17.8
	Brown & Williamson	10.7
	Pinkerton	3.6
Twist	Conwood	54
	R. C. Owen	46
Finecut Snuff	U.S. Tobacco	89.3
	General Cigar	3.3
	Conwood	7.6
Looseleaf	Pinkerton	40
	Conwood	30
	Lorillard	18
	General Cigar	8
	R. J. Reynolds	4

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A breakdown by sales volume and market share for 1983 is given:⁴

<u>Manufacture</u>	<u>Unit Sales Volume</u>	<u>Market Share (%)</u>
Conwood	33,554	25.4
U.S. Tobacco	31,183	23.6
Pinkerton	30,070	22.8
Lorillard	12,648	9.6
R. J. Reynolds	11,151	8.5
General Cigar	10,660	8.1
Brown & Williamson	1,899	1.4
R. C. Owen	811	0.6
	131,845	100.0

Pinkerton (Liggett Group) currently has the top selling looseleaf smokeless tobacco, Red Man. The company, which offers the most smokeless tobacco products, is Conwood.⁵ A list of the most popular brands of smokeless tobacco is given in Table I.

ANALYTICAL

The chemical composition of smokeless tobacco (both snuff and chewing tobacco) was not found in the literature search performed for this purpose. Several different types of smokeless tobacco were submitted through the Cigarette Testing Services Division for chemical analyses. Two brands of chewing tobacco were tested; four brands of snuff were tested. Data are given in Table II.

All samples showed a high percentage of total reducing sugars and a low percentage of total alkaloids. The nitrate nitrogen level of the smokeless tobaccos tested vary depending upon the type of smokeless tobacco. Table III gives comparative data for all analyses.⁶

Several studies measuring blood nicotine and cotinine concentrations in volunteers have been documented. These studies show that within 10 minutes after taking snuff, the blood nicotine concentrations were comparable to those obtained after the 10 minutes (approximately) it takes to smoke a cigarette.⁷ N-nitroso-compound research of smokeless tobacco is continuing. To date, important correlations concerning N-nitrosamines in smokeless tobacco have been drawn.⁸

If you have any questions or more information is needed concerning smokeless tobacco, please contact me.

- ¹Memo from M. Z. DeBardleben to H. G. Daniel, "Chewing Tobacco in the United States," Dec. 5, 1980.
- ²Memo from S. Mendell to Mr. W. L. Thomas, "Manufacture of Snuff," Oct. 22, 1982.
- ³DeBardleben, op. cit.
- ⁴United States Tobacco Journal, "Mixed Results for Smokeless Cigars down in '82," p. 12, June 22, 1983.
- ⁵U.S. Tobacco Journal, op. cit.
- ⁶Memo from C. C. Bright to J. E. Wickham, "Chemical Composition of Strip and Stem on a Dry Weight Basis," April 15, 1983.
- ⁷Russell, M. A. H., et al, "Nicotine Intake by Snuff Users," British Medical Journal, Volume 283, #6295, pp. 814-17, 1981.
- ⁸Bhide, S.V., et al, "Detection of Nitrosamines in a Commonly Used Chewing Tobacco," Food Cosmet. Toxicol, Volume 19, #4, 1981, pp. 481-483, 1981.

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Attachments

TABLE I

SMOKELESS TOBACCO PRODUCTS

<u>Type</u>	<u>Manufacturer</u>	<u>Brand Name</u>
Plug	Pinkerton R. J. Reynolds Conwood Conwood	Redman Plug R. J. Gold Taylors Pride Levi Garrett Plug
Twist	Conwood Conwood	Old Taylor Yellow Tag
Finecut	Conwood U.S. Tobacco U.S. Tobacco U.S. Tobacco	Kodiak Copenhagen Skoal Skoal Bandits
Looseleaf	Conwood Lorillard Pinkerton R. J. Reynolds	Levi Garrett Beech-nut Redman Workhorse

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TABLE II

CHEMICAL ANALYSIS OF SMOKELESS TOBACCO

	<u>Chewing Tobacco</u>		<u>Snuff</u>			
	<u>Red Man</u>	<u>Beechnut</u>	<u>Kodiak</u>	<u>Copenhagen</u>	<u>Skoal</u>	<u>Skoal Bandits</u>
Total Alkaloids, %*	1.1	0.7	1.6	2.7	2.7	1.9
Total Red. Sugars, %*	9.9	8.6	4.1	4.4	4.3	3.6
Nitrate Nitrogen, %*	0.33	0.23	0.69	0.68	0.81	0.56
Package O.V., %	20.5	21.6	50.6	54.7	53.3	45.0

*These numbers have been corrected to a dry weight basis.

TABLE III

CHEMICAL ANALYSES COMPARISON OF
CIGARETTE AND SMOKELESS TOBACCOS

	<u>Total Reducing Sugars, %</u>	<u>Total Alkaloids, %</u>	<u>Nitrate Nitrogen, %</u>
Bright Lamina**	12.9	3.76	<0.04
Bright Stem**	6.5	0.85	0.50
Burley Lamina**	N.D.*	3.16	0.54
Burley Stem**	N.D.*	0.95	2.51
Red Man	9.94	1.12	0.33
Beechnut	8.55	0.70	0.23
Kodiak	4.05	1.56	0.69
Copenhagen	4.42	2.72	0.68
Skoal Bandits	4.28	2.74	0.86
Skoal	3.64	1.91	0.56

*None Detected

**Represents average values for these analyses.